AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A system having dynamic unbalance compensation, said system comprising:

a support member;

a rotational assembly mounted on the support member and rotatable about an axis of rotation relative to the support member; and

a ~~one or more~~ momentum ~~device~~ devices mounted on the rotational assembly, each momentum device ~~and~~ generating a momentum vector component perpendicular to the axis of rotation, wherein ~~the~~ each momentum vector component generates a compensation torque when the rotational assembly spins so as to compensate for dynamic unbalance of the rotational assembly.

Claim 2 (currently amended): The system as defined in claim 1, wherein ~~the~~ each momentum device comprises a rotating momentum wheel.

Claim 3 (currently amended): A system as defined in claim 1, wherein ~~the~~ each momentum device is oriented to provide an angular momentum vector substantially perpendicular to the axis of rotation.
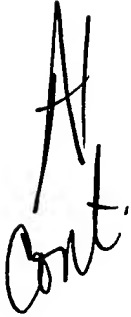
Claim 4 (currently amended): The system as defined in claim 1, wherein ~~the~~ each momentum device is oriented to generate a first component of the momentum vector perpendicular to the axis of rotation and a second component of the momentum vector parallel to the axis of rotation.

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Claim 5 (currently amended): The system as defined in claim 1, wherein the one or more momentum ~~device~~ devices ~~comprises~~ includes a first momentum device and a second momentum device.

Claim 6 (original): The system as defined in claim 5, wherein the first and second momentum devices form a scissored pair.

Claim 7 (currently amended): The system as defined in claim 1, wherein the one or more momentum ~~device~~ devices ~~comprises~~ includes first, second, and third momentum devices.

Claim 8 (original): The system as defined in claim 7, wherein the first, second, and third momentum devices are mounted on the rotational assembly equiangularly located about the axis of rotation.

Claim 9 (original): The system as defined in claim 1, wherein the support member comprises a vehicle.

Claim 10 (original): The system as defined in claim 9, wherein the vehicle comprises a spacecraft.

Claim 11 (original): The system as defined in claim 1, wherein the rotational assembly comprises an instrument.

Claim 12 (original): The system as defined in claim 1 further comprising a controller for controlling at least one of speed and orientation of the momentum device so as to control the momentum vector. — each

Claim 13 (currently amended): A spacecraft system having dynamic unbalance compensation, said system comprising:
a spacecraft;

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a rotational assembly mounted on the spacecraft and rotatable about an axis of rotation relative to the spacecraft; and

a one or more momentum ~~device~~ devices mounted on the rotational assembly, each momentum device ~~and~~ generating a momentum vector component perpendicular to the axis of rotation, wherein the momentum vector component generates a compensation torque when the rotational assembly spins so as to compensate for dynamic unbalance of the rotational assembly.

Claim 14 (currently amended): The system as defined in claim 13, wherein ~~the~~ each momentum device comprises a rotating momentum wheel.

Claim 15 (currently amended): A system as defined in claim 13, wherein ~~the~~ each momentum device is oriented to provide an angular momentum vector substantially perpendicular to the axis of rotation.

Claim 16 (currently amended): The system as defined in claim 13, wherein ~~the~~ each momentum device is oriented to generate a first component of the momentum vector perpendicular to the axis of rotation and a second component of the momentum vector parallel to the axis of rotation.

Claim 17 (currently amended): The system as defined in claim 13, wherein the one or more momentum ~~device~~ devices ~~comprises~~ includes a first momentum device and a second momentum device.

Claim 18 (original): The system as defined in claim 17, wherein the first and second momentum devices form a scissored pair.

Claim 19 (currently amended): The system as defined in claim 13, wherein the one or more momentum ~~device~~ devices ~~comprises~~ includes first, second, and third momentum devices.

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Claim 20 (original): The system as defined in claim 19, wherein the first, second, and third momentum devices are mounted on the rotational assembly equiangularly located about the axis of rotation.

Claim 21 (original): The system as defined in claim 13, wherein the rotational assembly comprises an instrument.

Claim 22 (original): The system as defined in claim 13 further comprising a controller for controlling at least one of speed and orientation of the momentum device so as to control the
momentum vector. ——each

Claim 23 (currently amended): ~~A~~ In a system having a rotational assembly mounted on a vehicle, and one or more momentum devices rotationally mounted on the rotational assembly, a method of balancing a dynamic unbalanced rotating assembly on ~~a~~ the vehicle, said method comprising the steps of:

~~providing a vehicle having a rotational assembly mounted on the vehicle;~~

rotating the rotational assembly about an axis of rotation relative to the vehicle; and

~~applying~~ rotating each momentum device to thereby apply momentum in a vector perpendicular to the axis of rotation to generate a compensation torque during rotation of the rotational assembly so as to compensate for dynamic unbalance of the rotational assembly.

Claim 24 (canceled).

Claim 25 (currently amended): The method as defined in claim 23, wherein ~~the step of applying momentum comprises spinning~~ each momentum device comprises a momentum wheel.

Claim 26 (currently amended): The method as defined in claim 23, wherein the step of ~~applying momentum comprises~~ rotating each momentum device further includes generating a first component of the momentum vector perpendicular to the axis of rotation and a second component of the momentum vector parallel to the axis of rotation.

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Claim 27 (currently amended): The method as defined in claim 23, wherein the step of ~~applying momentum comprises applying momentum with~~ <u>rotating each momentum device further includes rotating</u> a first momentum device and a second momentum device.

Claim 28 (currently amended): The method as defined in claim 27, wherein the step of ~~applying momentum further comprises applying momentum with~~ <u>rotating each momentum device further includes rotating</u> a third momentum device.

Claim 29 (currently amended): The method as defined in claim 23 further comprising the step of controlling at least one of speed and orientation of ~~the~~ <u>each</u> momentum device so as to control the momentum vector.